

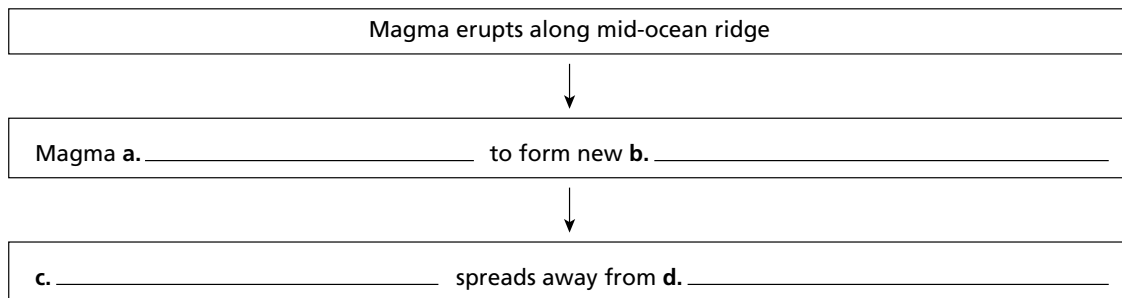
**Plate Tectonics** ▪ *Guided Reading and Study*

## Sea-Floor Spreading

*This section explains sea-floor spreading and describes evidence that it happens. The section also explains subduction and describes how subduction affects Earth's oceans.*

### Use Target Reading Skills

*As you read about sea-floor spreading, fill in the flowchart to show the sequence of events.*



### Mid-Ocean Ridges

- Circle the letter of each sentence that is true about mid-ocean ridges.
  - The mid-ocean ridges were mapped using sonar.
  - The mid-ocean ridges are found only below the Pacific Ocean.
  - The mid-ocean ridges are completely under water.
  - The tops of some mid-ocean ridges are split by a steep-sided valley.
- A device that bounces sound waves off underwater objects is called \_\_\_\_\_.
- What is sonar used for? \_\_\_\_\_

### What Is Sea-Floor Spreading?

- The process that continually adds new material to the ocean floor is called \_\_\_\_\_.
- In sea-floor spreading, where does new crust come from? \_\_\_\_\_

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**Evidence for Sea-Floor Spreading**

6. List three types of evidence for sea-floor spreading.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
7. Circle the letter of each sentence that is true about Earth's magnetism.
  - a. At times in the past, a compass needle on Earth would have pointed south.
  - b. Rock that makes up the ocean floor lies in a pattern of magnetized stripes.
  - c. The pattern of stripes is different on both sides of mid-ocean ridges.
  - d. The magnetic memory of rock on the ocean floor changes over time.
8. How did drilling samples show that sea-floor spreading really has taken place?

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**Subduction at Trenches**

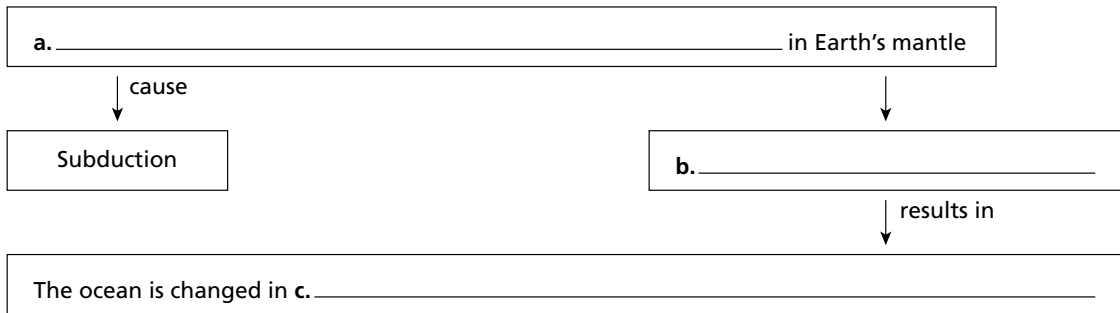
9. A long, narrow and very deep canyon where the ocean floor bends down toward the mantle is called a \_\_\_\_\_.
10. What is subduction? \_\_\_\_\_

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**Sea-Floor Spreading** *(continued)*

11. Complete the cause, events, and effect graphic organizer to show the relationships among the processes of convection currents, subduction, and sea-floor spreading.



- d. What process in Earth's interior causes subduction and sea-floor spreading? \_\_\_\_\_  
 \_\_\_\_\_
- e. What effect do those two events have on Earth's surface? \_\_\_\_\_  
 \_\_\_\_\_
12. Is the following sentence true or false? At deep-ocean trenches, conduction allows oceanic crust to sink back into the mantle.  
 \_\_\_\_\_
13. Is the following statement true or false? The Pacific Ocean is shrinking.  
 \_\_\_\_\_
14. Why is the Atlantic Ocean expanding? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_